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Eighth Meeting, 13th March, 1865.

SIR RODERICK I. MURCHISON, K.C.B., PRESIDENT, in the Chair.

PRESENTATIONS.—*Henry B. Owen, Esq.*; *Major A. Y. Sinclair*; *Rev. Thomas Fleming*; *Alderman J. S. Gibbons*; *Francisco E. Pereira, Esq.*; *Gilbert Mackmurdo, Esq.*

ELECTIONS.—*Colonel Henry W. Blake*; *Rev. T. Cornthwaite, M.A.*; *Captain Roderick Dew, C.B., R.A.*; *Hereford Brooke George, Esq.*; *Lord William Hay*; *Thomas Morson, Jun., Esq., F.C.S.*; *Edward B. Phillips, Esq.*; *Sidney Bouverie Pusey, Esq.*; *W. J. Rideout, Esq.*; *Alphonsus Webster, Esq.*

ACCESSIONS TO THE LIBRARY.—Continuations of 'Journals,' 'Transactions,' &c., of the different Societies.

ACCESSIONS TO THE MAP-ROOM.—Ordnance Maps—Parish of Northwood, Isle of Wight; Area Books of the Isle of Wight. Tasmania—West, nach Charles Gould, M.A.; by A. Petermann. South America—Peru, by M. Manuel Ronand y Paz Soldan; by the Author. Asia—Carte de la Terre Sainte, pour servir à l'étude des Saintes Écritures, par C. W. M. Van de Velde; Karte zur Übersicht der Reisen von G. Rohlf's, in Marokko 1863-4; by A. Petermann, Gotha, 1865.

The first Paper was—

1. *On Stereoscopic Maps, taken from Models of Mountainous Countries.*
By FRANCIS GALTON, ESQ., F.R.S., F.R.G.S. Illustrated by Photographs taken by R. CAMERON GALTON, ESQ.

THIS was a description of a new application of photography to the delineation of mountainous districts, for the use of tourists. The best maps, it was maintained, failed to impart a correct idea of the inequalities of mountainous regions. Simple shading is too feeble an instrument to express gradations of relief, and contour maps fail wherever crags and cliffs have to be represented, for the lines then become so superimposed that they are wholly unintelligible. Having often had disagreeable experience of the inadequacy of maps in these respects, Mr. Galton conceived the idea of testing the effect of stereographs, and borrowed a few of the smaller and less delicate models for the purpose, from the collection of the Royal Geographical Society, placing them in the hands of his cousin, Mr. R. Cameron Galton, an excellent amateur photographer, who had kindly offered to assist him. It was found that by taking stereoscopic views of good models (coated temporarily with white paint whenever the tints were unsuitable for pho-

tography), all the advantages of a model could be given in a portable form, which could be viewed with a common eye-glass stereoscope, to be carried in the waistcoat-pocket. If stereoscopic maps be required of larger size than the ordinary slide, the model may be marked into squares, and stereoscopic prints of each square may be conjoined, both laterally and longitudinally. This had been done in one of the specimens submitted to the Society, where it would be found that the stereoscope might be held over any part of the joint pictures with perfect success; the theoretical condition of keeping the centres of the lenses exactly over the centres of the stereographs being of no importance in practice. There is no limit to the number of stereographs that might be thus attached one below the other. Mr. Galton, in the course of his paper, drew attention to the large number of beautiful models exhibited in various museums at home and abroad—such as those of the Alps, the Pyrenees, and the Cumberland mountains—all of which were available for the stereoscope; the camera being mounted on a stage above them, and the models illumined by magnesium light. Mr. Cameron Galton also contributed additional notices on the photographic methods he had employed in making the numerous stereographs he exhibited.

The Paper will be printed in full in the Journal, with a stereographic illustration.

The PRESIDENT believed that to geographers on a large scale the invention, of which the Meeting had just heard so clear a description, could not be of so much interest as to those who went to examine limited districts. As a geographer he had no difficulty himself in thoroughly understanding the altitudes, depressions, and all the physical features delineated in the ordinary way on a really good map, if it were on a sufficient scale; but he quite admitted that a good model conveyed to the general observer a more distinct impression. This was all, he presumed, Mr. Galton intended by his invention, viz., to supply tourists with valuable illustrations of the surface of the particular district they were about to visit. There are certain tracts which have already been well modelled—the Alps for instance; but these tracts are small indeed, in comparison with the surface of the earth. In contoured maps it was no doubt almost impossible, when you came to the abrupt side of a mountain chain, to understand the degree of declivity and altitude from the number and closeness of the lines that come together. This stereoscopic application did away with this difficulty, because it represented the mountains in true relief.

Mr. W. J. HAMILTON asked Mr. Galton whether the models from which he had taken his stereoscopic views were upon the natural scale, or whether the horizontal scale differed from the vertical one.

Mr. GALTON said he had taken the common models that existed in the Society's collection, and they were of all kinds. He believed the Austrian model of the island of St. Paul, which he exhibited to the Meeting, was true to nature, but he doubted whether the other models were.
